REMARKS

This application has been reviewed in light of the Office Action dated January 5, 2004. Claims 1-15 are pending, with Claims 1, 11, 14, and 15 in independent form. Claims 1 and 11-15 have been amended as to matters of form only and have not been made in response to any rejections or in view of any prior art. Favorable reconsideration is requested.

Claims 1-15 were rejected under the judicially created doctrine of obviousness-type double patenting as allegedly unpatentable over claims 1-18 of U.S. Patent No. 6,289,151 ("Kazarinov et al.") in view of the article, "Harmonically Mode-Locked Fiber Ring Laser With An Internal Fabry-Perot Stabilizer For Soliton Transmission," by Harvey et al. Claims 1-10 and 14 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Harvey et al. article. And, Claims 11-13 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by the Harvey et al. article. Applicants respectfully traverse these rejections and submit that independent Claims 1, 11, 14, and 15, together with the dependent claims, are patentably distinct from the cited references, taken separately or in combination, for at least the following reasons.

The purpose of the present invention is to synchronize high speed transmission signals with low speed control signals. (*See* p1, lines 19-20, and p2, lines 6-11 of the specification). This is achieved, in part, by matching the free spectral range of an *all-pass filter* to the regular repetition rate of an input optical pulse. (*See* p6, lines 15-21 of the specification).

This feature is captured in independent Claim 1, which requires, an article comprising an all-pass optical filter including an input port, an output port, a splitter/combiner, and one feedback path. The input port is for receiving an input optical pulse having a regular repetition rate. The all-pass optical filter is configured to apply a plurality of frequency-dependent time delay periods to the input optical pulse to define a time delay spectrum having a

plurality of delay peaks. A *free spectral range* of the *all-pass optical filter*, as defined by a spacing between the delay peaks, is *matched* to the *regular repetition rate* of the input optical pulse.

The Kazarinov et al. patent, including its claims, however, is silent regarding matching the free spectral range of an all-pass filter to the regular repetition rate of an input optical pulse, as required by independent Claim 1.

Further, the Harvey et al. article is also silent regarding such a feature. To elaborate, the Harvey et al. article is not understood to address synchronization of high-speed transmission signals with low speed control signals, as does the present invention. In particular, the Harvey et al. article pertains to extending the error-free distance of a series of soliton transmissions with a mode-locked laser. *See* Abstract. Harvey et al. achieve the result of extending the error-free distance of a series of soliton transmissions by inserting a high-finesse étalon into a mode-locked laser. The étalon's free spectral range is essentially equal to an incoming pulse repetition rate. *See* page 107, second paragraph, and Fig. 1. Although the Harvey et al. article discloses equalizing the free spectral range of an étalon to an incoming pulse repetition rate, an étalon is not an all-pass filter. Further, this equalization is for extending the error-free distance of a series of soliton transmissions with a mode-locked laser, and is not understood for synchronization of high-speed transmission signals with low speed control signals.

Accordingly, Applicants have not found any disclosure in the Kazarinov et al. patent or the Harvey et al. article, taken separately or in combination, that teaches or suggests to a person having ordinary skill in the relevant art synchronizing high speed transmission signals

with low speed control signals by matching the free spectral range of an *all-pass filter* to the regular repetition rate of an input optical pulse according to Claim 1.

Independent Claims 11, 14, and 15 include similar features to the feature discussed above in connection with Claim 1 and are believed to be patentable for similar reasons. In particular, Claim 11 requires "matching a spacing between frequency-dependent time delay peaks generated by the all-pass optical filter to the repetition rate of the pulse train." Claim 14 requires "off-setting a free spectral range of the filter as defined by a spacing between the delay peaks from the regular repetition rate of the input optical signal by a predetermined value such that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks, wherein the predetermined value is selected to substantially equalize the linear chirp of the pulsed laser." And, Claim 15 requires, "configuring a free spectral range of the all-pass optical filter as defined by a spacing between the delay peaks to be equal to the regular repetition rate of the input optical pulse." Neither the Kazarinov et al. patent nor the Harvey et al. article are understood to teach or suggest such features pertaining to *all-pass filters*.

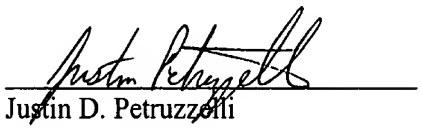
The other rejected claims in this application depend from one or another of the independent claims discussed above and, therefore, are patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and the allowance of the present application.

Applicants' undersigned attorney may be reached by telephone at (973) 597-2500.

All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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